

Source Water Microbiological Monitoring

The City of Bismarck has a program of testing its untreated water supply for Cryptosporidium, Giardia and E. coli as part of Round 2 of the Long Term 2 Enhanced Surface Water Treatment Rule.

In 2017, nine (9) samples were collected from the horizontal collector well for Cryptosporidium analysis and there was no detection. Cryptosporidium is a microbial parasite found in surface water throughout the U.S. Although filtration removes Cryptosporidium, the most commonly used filtration methods cannot guarantee 100 percent removal.

In 2017, nine (9) samples were collected from the horizontal collector well for Giardia analysis and there was no detection. Giardia is a microbial parasite commonly found in surface water. Although filtration removes Giardia, the most commonly used filtration methods cannot guarantee 100 percent removal.

In 2017, nine (9) samples were collected from the horizontal collector well for E. coli analysis and there was no detection. E. coli is an indicator bacteria commonly found in surface water and originates in the intestinal tract of warm blooded animals, some types of E. coli bacteria are pathogenic. It is effectively removed by filtration and destroyed by chlorination and was not detected in the finished water or in the distribution system through our Coliform/E. coli bacterial testing program.

To Learn More

We encourage public interest and participation in our community's decisions affecting drinking water. Regular City Commission meetings are held on the second and fourth Tuesday of each month in the Tom Baker Meeting Room at the City/County Building at 221 North 5th Street. The public is welcome to attend. These meetings are also televised on Dakota Media Access, Channel 2. You can learn more about the Bismarck Water Treatment Facility at www.bismarcknd.gov. Water quality data for community water systems throughout the United States is available at www.waterdata.com.

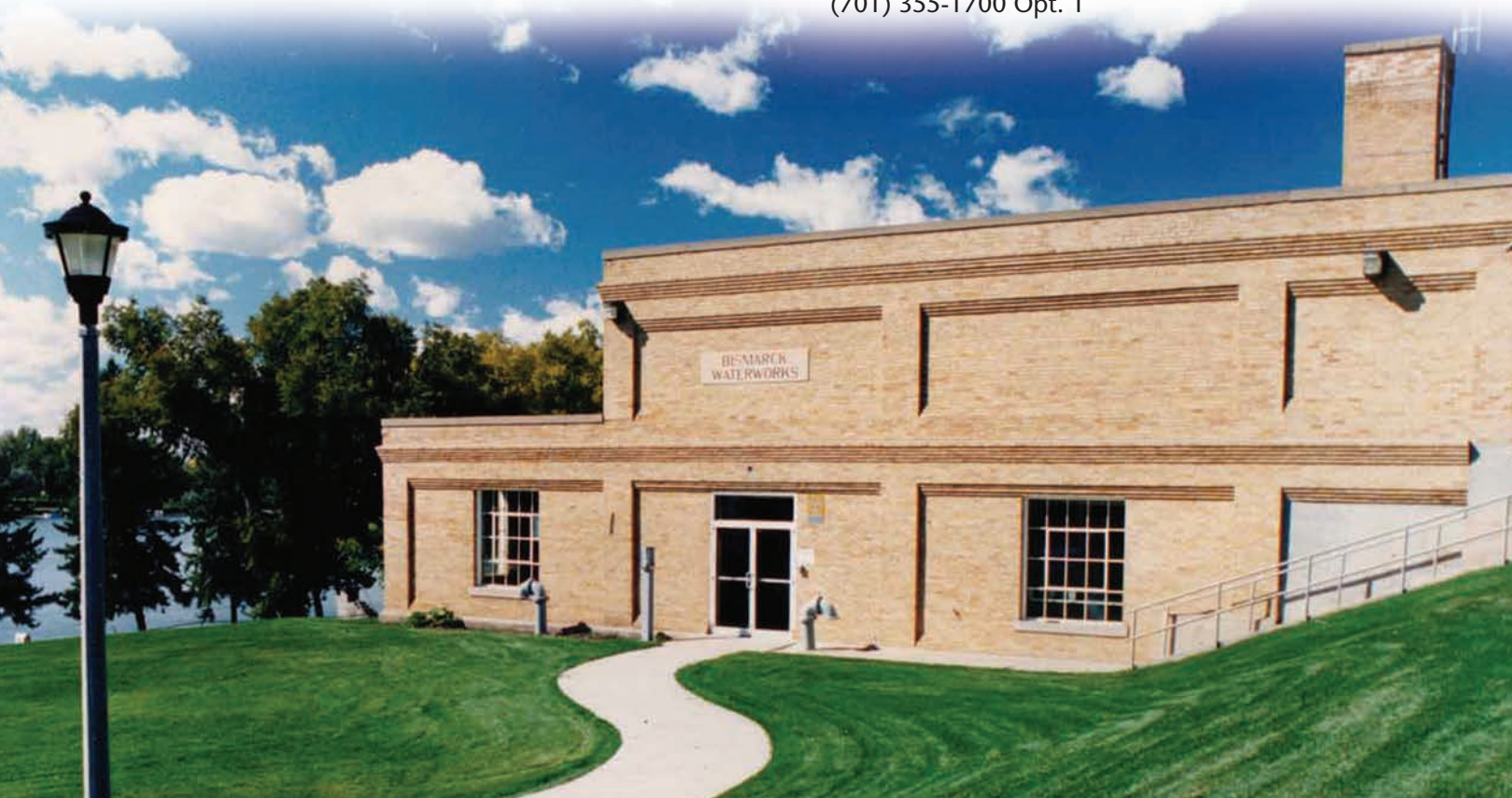
We would appreciate the cooperation of large volume water customers in posting copies of this report in conspicuous locations or distributing them to tenants,

residents, patients, students, or employees, so individuals who consume the water, but do not receive a bill can learn more about our water system. Extra copies of this report are available at the Water Plant, the Public Works Department (601 S 26th Street) or the Bismarck Public Library (515 N 5th Street).

If you have questions about this report, need the report translated for non-English speaking consumers, or would like more information please call:
Jim Kershaw, Water Plant Superintendent
(701) 355-1662

Michelle Klose, Director of Utility Operations
(701) 355-1704

For questions about your water bill call
(701) 355-1700 Opt. 1



Bismarck

2017 WATER QUALITY REPORT

We are happy to report that again in 2017 the City of Bismarck's drinking water continued to meet all EPA and State Standards of quality and safety. This report is part of maintaining our compliance with the Environmental Protection Agency's guidelines to provide information on tap water produced by the Bismarck Water Treatment Facility. This report provides you with specific test results to show the quality of Bismarck's water and compares those results to EPA standards for drinking water. It will also give you some general information about health and sources of contamination. We hope you find this information to be useful.



2017 TAP WATER PROFILE

Average	Total Hardness	122 mg/L or 7.1 grains/gallon
	Total Alkalinity	63 mg/L
	pH	9.08
	Fluoride	0.70 mg/L
	Daily Water Production	10.82 million gallons
	Highest Daily Water Production	27.2 million gallons

Bismarck’s Water Source

The Bismarck Water Treatment Facility takes its water from a horizontal collector well adjacent to the Missouri River south of the Memorial Bridge. This collector well draws water from a depth of 80 feet in an aquifer that is directly recharged from the Missouri River. The direct river intake upstream of the Memorial Bridge serves as a backup to the collector well intake. Our public water system, in cooperation with the ND Department of Health, has

Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/Centers for Disease Control and Prevention (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

Sources of Contamination

The sources of drinking water (both tap and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants That May Be Present in Source Water: **Microbial Contaminants**, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

Inorganic Contaminants, such as salts and metals, which can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

Pesticides and Herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.

Organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff and septic systems.

completed the delineation and contaminant/land use inventory elements of the ND Source Water Protection Program. Based on the information from these elements, the ND Department of Health has determined that our source water is moderately susceptible to potential contaminants. A copy of this report is available by contacting the Water Department at (701) 355-1700 Option 1.

Concerning Lead in Our Water

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The Bismarck Water Treatment Facility is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. **Use water from the cold tap for drinking and cooking. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking.** If you are concerned about lead in your drinking water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.

Radioactive Contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA’s Safe Drinking Water Hotline (800-426-4791).

EPA requires us to monitor for more than 80 potential contaminants. The regulated contaminants that have been detected in Bismarck’s drinking water are shown on the attached table. The table also shows the maximum level that was detected and compares this to the EPA drinking water standards. These results show that Bismarck’s water meets all EPA water quality requirements.

2017 WATER QUALITY TESTING RESULTS FOR REGULATED CONTAMINANTS

CONTAMINANT	DATE TESTED*	UNIT	MCL	MCLG	HIGHEST COMPLIANCE LEVEL	RANGE OF DETECTIONS	MAJOR SOURCES	VIOLATION?
INORGANIC CONTAMINANTS								
Barium	4/10/2017	ppm	2	2	0.00516	NA	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits.	No
Cyanide	4/7/2015	ppb	200	200	66	NA	Discharge from steel/metal factories; discharge from plastic and fertilizer factories.	No
Fluoride #	4/10/2017	ppm	4	4	0.648	NA	Natural deposit erosion, additive to promote strong teeth	No
Nitrate + Nitrite	5/23/2017	ppm	10	10	0.03	NA	Fertilizer runoff, leaching from septic tanks, sewage.	No
SYNTHETIC ORGANIC CONTAMINANTS INCLUDING PESTICIDES AND HERBICIDES								
Pentachlorophenol	4/10/2017	ppb	1	0	0.03	NA	Discharge from wood preserving factories.	No
RADIOACTIVE CONTAMINANTS								
Combined Radium (226, 228)	5/1/2017	pCi/L	5		1.17	NA	Erosion of natural deposits	No
Combined Uranium	5/1/2017	ppb	30		ND	-0.76 to 0	Erosion of natural deposits	No
Gross Alpha, including RA, excluding RN & U	5/1/2017	pCi/L	15	15	ND	NA	Erosion of natural deposits	No
DISINFECTANTS			MRDL	MRDLG				
Chloramine	9/30/2017	ppm	4.0	4	1.9	1.15 to 2.68	Added as water disinfectant	No
UNREGULATED CONTAMINANTS								
Alkalinity, Carbonate	4/10/2017	ppm			7	NA	NA	NA
Bicarbonate as HCO3	4/10/2017	ppm			56	NA	NA	NA
Calcium	10/10/2017	ppm			48.4	0-48.4	NA	NA
Chloride	4/10/2017	ppm			32.8	NA	NA	NA
Conductivity @ 25 C UMHOS/CM	10/10/2017	umho/cm			867	695-867	NA	NA
Hardness, Total (as CaCO3)	4/10/2017	ppm			133	NA	NA	NA
Magnesium	4/10/2017	ppm			19.3	NA	NA	NA
Nickel	4/10/2017	ppm			0.00114	NA	NA	NA
Orthophosphate	10/10/2017	ppm			1.21	0.74-1.21	NA	NA
PH	10/10/2017	PH			9.33	8.73-9.33	NA	NA
Potassium	4/10/2017	ppm			4	NA	NA	NA
Sodium	4/10/2017	ppm			114	NA	NA	NA
Sodium Adsorption Ratio	4/10/2017	obsvns			4.3	NA	NA	NA
Sulfate	4/10/2017	ppm			308	293-308	NA	NA
TDS	4/10/2017	ppm			535	NA	NA	NA
Temperature (Centigrade)	10/10/2017	C			29.6	6.5-29.6	NA	NA
Zinc	4/10/2017	ppm			0.0029	NA	NA	NA
TOTAL ORGANIC CARBON (TOC) REMOVAL								
Total Alkalinity (source)	4/30/2017	MG/L			262	214.00 to 262.00	Natural erosion, certain plant activity, certain industrial wastewater discharges	No
Total Organic Carbon (source)	12/31/2017	MG/L			8.2	4.50 to 8.20	Naturally present in the environment	No
Total Organic Carbon (finished)	6/30/2017	MG/L			2.6	2.10 to 2.60	Naturally present in the environment	No
DISINFECTION BYPRODUCTS			MCL	MCLG				
Total Trihalomethanes (TTHM)	3/31/2017	ppb	80	NA	33	11.86 to 34.26	By-product of drinking water chlorination	No
Total Haloacetic Acids (HAA5)	3/31/2017	ppb	60	NA	13	4.76 to 16.12	By-product of drinking water chlorination	No
LEAD AND COPPER SAMPLING AT RESIDENTIAL TAPS					90TH PERCENTILE	EXCEEDENCE		
Lead	11/30/2017	ppb	AL=15		8.4	0	Corrosion of household plumbing systems	No
Copper	11/30/2017	ppm	AL=1.3		0.02	0	Corrosion of household plumbing systems	No

*As authorized and approved by EPA, the State has reduced monitoring requirements for certain contaminants to less often than once per year because the concentrations are not expected to vary significantly from year to year. Some of our data, though representative, are more than one year old. # Samples are taken daily.

Key to Table

ppm = parts per million, or milligrams per liter (mg/L)
ppb = parts per billion, or micrograms per liter (ug/L)
ppt = parts per trillion or nanograms per liter (ng/L)
ppq = parts per quadrillion or picograms per liter (pg/L)
ND = none detected
IDSE = Initial Distribution System Evaluation
NA = not applicable
pci/L = Pico curies per liter: a measure of radioactivity
NTU = Nephelometric turbidity units
umho/cm=micromhos per centimeter (a measure of conductivity)
obsvns=observations/field at 100 Power
Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLG's allow for a margin of safety.
Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. MCL's are set as close to the MCLG's as feasible using the best available treatment technology.
Maximum Residual Disinfectant Level Goal (MRDLG): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
Maximum Residual Disinfectant Level (MRDL): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Treatment Technique (TT): A required process intended to reduce the level of a contaminant in drinking water.
Action Level (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow. For lead and copper the Action Level is exceeded if the 90th percentile value exceeds the Action Level. Sixty-one sites were sampled for lead, sixty-one sites for copper and zero sites exceeded the Action Level for lead.
**** Turbidity** is a measure of the cloudiness of water. We monitor it because it is a good measure of the effectiveness of our filtration system. Turbidity has no health effects, however it can interfere with disinfection or provide a medium for microbial growth. Compliance is determined by the percentage of samples that meet the limit of 0.3 NTU. Lowest monthly percentage of samples meeting turbidity limits =100. Highest single measurement = 0.11.
Highest Compliance Level: The highest level of that contaminant used to determine compliance with a National Primacy Drinking Water Regulation.
Range of Detections: The lowest to the highest result value recorded during the required monitoring timeframe for systems with multiple entry points.
Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulation is warranted. Should you have any questions, please contact our office at (701) 355-1700.